

# FORD

## REAR ATTACHED MOWER SERIES 501

# Operator's Manual

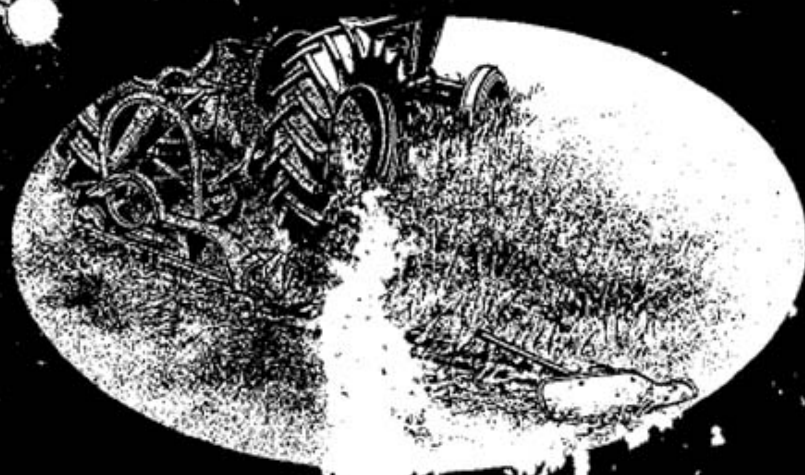


Photo Operation

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## GENERAL INFORMATION

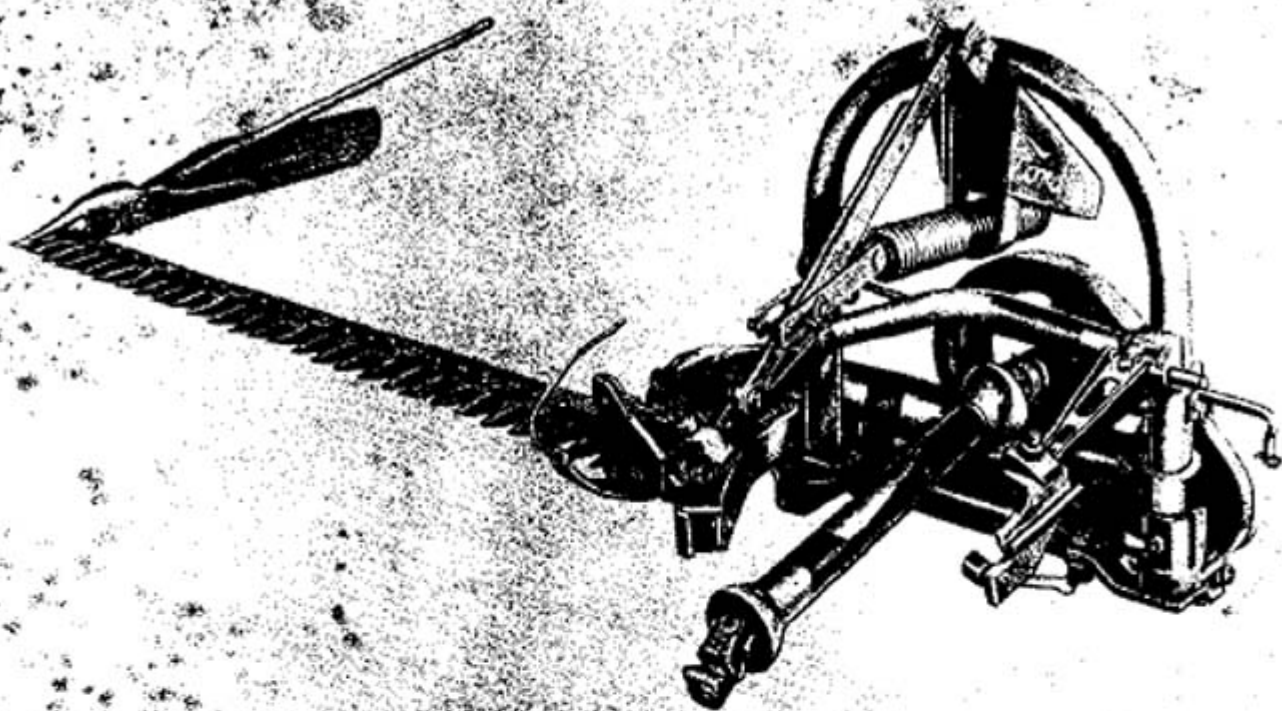


Figure 1  
Ford Series 501 Rear Attached Mower

### GENERAL INFORMATION

The Ford Series 501 Rear Attached Mower, Figure 1, is designed for use on all Ford tractors except LCG, equipped with a hydraulic system or any other tractor that has a similar three-point lift linkage.

The Ford "56" Mower is available for use with tractor wheel spacings to 56 inches. The Ford "76" Mowers which have a longer frame, Pitman arm, and linkage may be used with tractor wheel spacings to 76 inches. This feature permits the operator to change from cultivating to mowing without adjusting the tractor wheel tread. With the exception of frame size the two models are alike. Either model will accommodate a six, seven, or eight foot cutter bar and may be ordered with standard or heavy duty knife guards. Standard knife guards should be used when operating the mower in thick grassy conditions.

The heavy duty balance spring permits the mower to follow the contour of uneven ground. There is also a safety release on the mower which permits the cutter bar to swing back when it strikes an obstruction.

To accommodate various field conditions and tractor P.T.O. speeds, the main drive sheave and belt kit are available in four sizes. Also, heavy duty serrated or plain knife sections to replace the standard serrated knife sections are available for use when mowing tough or wiry crops.

The mower is raised and lowered by the tractor hydraulic system. When the cutter bar is raised, the inner shoe lifts 8 to 10 inches off the ground before the outer shoe starts to rise. This feature permits sufficient slack in the linkage to raise the cutter bar from 30 inches at the outer shoe. The cutter bar is easily raised for passage over stumps and rocks without stopping the tractor by using the tractor hydraulic control lever.

### PRE-OPERATION

#### ATTACHING THE MOWER

The following procedure should be followed when attaching the Ford Series 501 Mower to all Ford Tractors except the 6000. The information required for attaching the mower to the Ford 6000 Tractor is given on page 23 of this manual.

## PRE-OPERATION

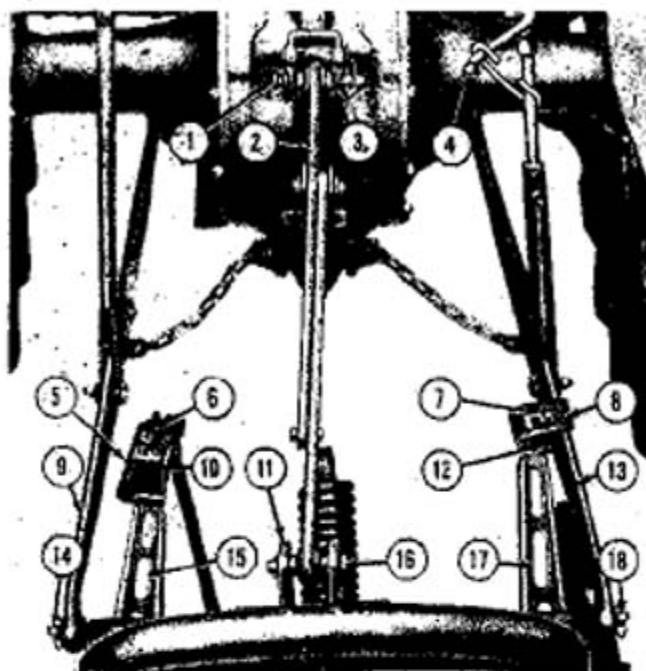


Figure 2  
Attaching the Mower to the Tractor  
(Typical Installation)

These mowers may also be used with the Fordson Major, Power Major, and Super Major Tractors. See Installation Instructions, SE 6228-CS1, for assembly and attaching information when attaching the mower to these tractors.

Attach the mower to the tractor as follows:

1. Adjust the tractor rear wheels to 56-inch centers or less for attaching the 56-inch frame mower, and to 76-inch centers or less for the 76-inch frame mower. See your Tractor Operator's Manual for wheel adjustment procedures.
2. Back the tractor into position, as shown in Figure 2, and attach the tractor left lower link (9) to the lift link pin (14). Secure with the tractor link pin.
3. Roll the tractor and/or adjust the leveling crank (4), until the tractor right lower link (13) is aligned with the right link pin (18) and secure with the tractor link pin as shown.

**NOTE:** The upper link is adjustable to lengths of 23, 25 and 27 inches. Use the length which will most nearly set the mower upper frame vertical in the operating position.

4. Attach the upper link (2) to the lower hole in the tractor rocker arm with the link pin (1).

**NOTE:** When attaching the mower to Ford 4000 or Ford 5000 Tractors, an upper link bracket is required. Attach the upper link bracket to the tractor with the headed pin and 1/4" x 1-1/4" cotter pin provided. See Figure 3.

5. Start the tractor engine and raise the mower frame assembly just off the ground with the tractor hydraulic control lever and shift the mower to the left to attach the left stabilizer (15). Figure 2, when attaching the mower to Ford 2000 and 3000 Tractors. Position the stabilizer guide (5) under the tractor left lift link (9), set the clamp (10) over the top of the link (9) and tighten the nut (6) securely.

**NOTE:** When attaching the mower to Ford 4000, 5000, 6000, and Fordson Major Tractors, tractor stabilizers must be used.

6. Install the push rod as follows:

**Ford 4000 Tractors:** Install the push rod anchor assembly on the left lower link and the push rod on the anchor as shown in Figure 4.

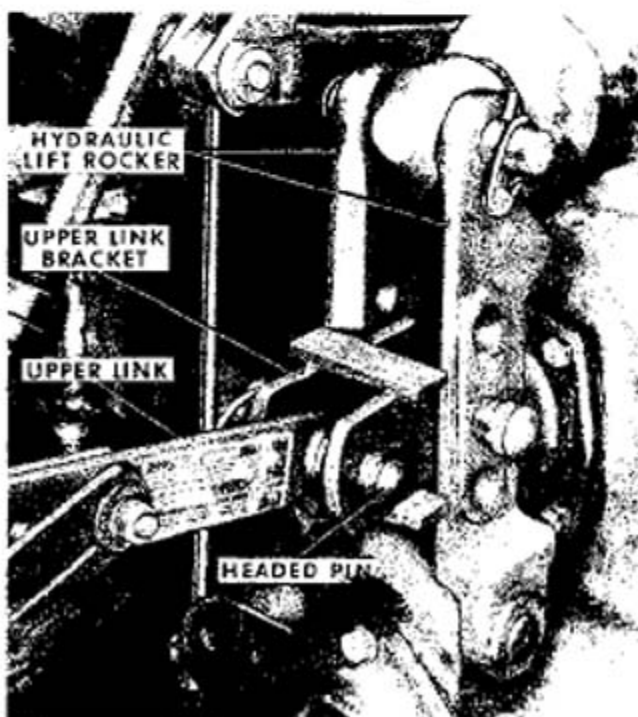


Figure 3  
Upper Link Bracket Installed (Typical Installation)

## PRE-OPERATION

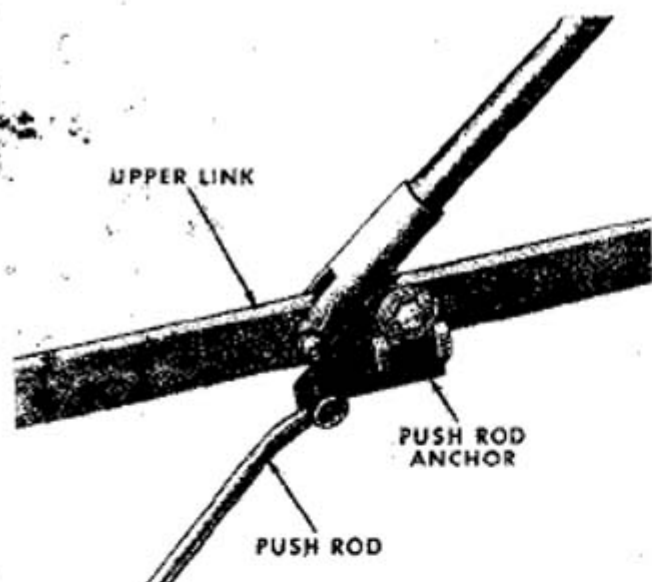


Figure 4  
Push Rod Anchor Attached (Ford 4000)

**Ford 5000, 6000 and Fordson Major Tractors:** Install the clamp plate assembly and outer clamp on the left lower link and the push rod to the clamp plate, as shown in Figure 5.

7. Shift the mower frame assembly to the right to attach the right stabilizer (17), Figure 2. Position the stabilizer guide (12) under the tractor right lift link (13), set the clamp (8) over the top of the link as shown, and tighten the nut (7) securely.
8. Raise the mower with the tractor hydraulic control lever and attach the mower lift spring (7), Figure 6, to the spring links (5) with the 3/4" x 1-7/8" headed pin (6) and linch pin provided. Lower the mower and turn off the tractor engine. See page 12 for lift spring adjustment.
9. Remove the tractor P.T.O. cup and attach the female splined end of the mower drive shaft (11) to the tractor P.T.O. shaft securing it with the snap coupler (4) on the yoke. See Figure 6.
10. Level the mower with the tractor leveling crank (2), Figure 6, so the lower frame is parallel to the ground. Secure the leveling crank to the lift rod with the leveling crank lock, as shown in Figure 2. Place the transport rod (3), Figure 7, in the clips (2) when not in use.

## TRANSPORTING THE MOWER

When transporting the mower to and from the field, secure the mower in the transport position. To secure the mower in the transport position:

1. Disengage the tractor P.T.O. and raise the cutter bar by hand to the vertical position shown in Figure 7.



**CAUTION:** Do not place your fingers between the guards. Grasp the rear edge of the cutter bar to raise or lower by hand.

2. Insert the notched flat end of the transport rod (3), Figure 7, into the cutter bar and rotate the rod until the notch locks on the cutter bar. Adjust the position of the cutter bar and the transport rod to align the hooked end of the rod and the eye (4) on the lower frame.
3. Hook the rod on the eye and secure with the hairpin provided.

**IMPORTANT:** Do not transport the mower with the cutter bar in working position as it is hazardous and may cause damage to the cutter bar, inner shoe, or lift linkage when the cutter bar whips up and down.

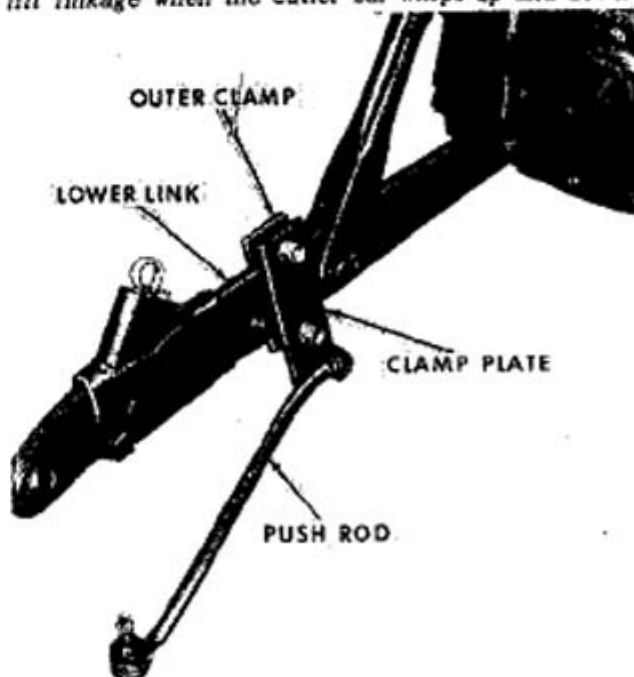


Figure 5  
Push Rod Anchor Attached (Ford 5000)



## PRE-OPERATION

Disengage the P.T.O. before placing the cutter bar in transport position or damage to the Pitman arm may result.

### FINAL CHECK BEFORE FIELD OPERATION

After the mower is assembled on the tractor and is properly lubricated, perform the following checks:

1. Make sure the mower lower frame is parallel to the ground and adjust if necessary, with the tractor leveling crank (2), Figure 7. The tractor right lower link should be approximately three inches lower than the left lower link.
2. Check the mower upper frame; it should be vertical.
3. Check the cutter bar outer shoe for a ground pressure of 25 to 40 pounds. If adjustment is necessary, see Balance Spring Adjustment, on page 11.
4. Check the cutter bar lift adjustment to be sure the inner shoe raises 8 to 10 inches before the outer shoe starts to raise. To adjust, see Cutter Bar Lift Adjustment on page 12.
5. Inspect the cutter bar inner shoe for a ground pressure of 40 to 80 pounds. To adjust, see Mower Balance Spring Adjustment on page 11.

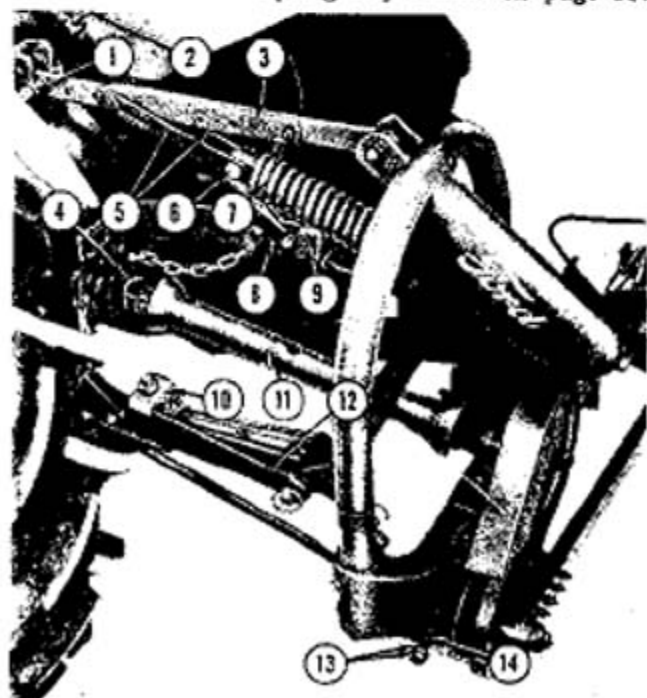


Figure 6  
Mower Attached

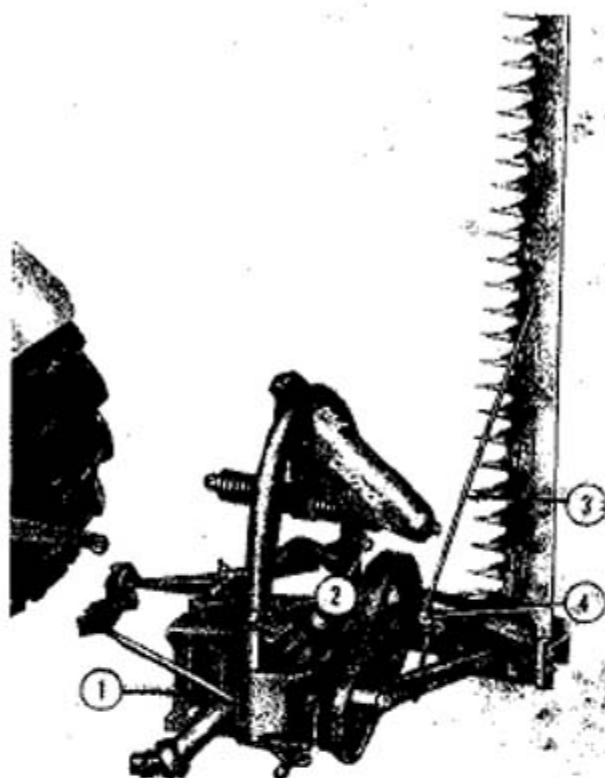


Figure 7  
Mower Detached

6. Check the cutter bar lead for about 1/4" per foot of cutter bar length or as required to keep the knife assembly aligned with the Pitman arm during operation. See Cutter Bar Lead Adjustment on page 11 if adjustment is necessary.
7. Check the knife assembly for register and shear. A dull knife, worn or broken ledger plates, uneven shoe adjustment, loose knife sections, knife out of register, bent or broken knife guards will cause ragged cutting. See Register Adjustment, Knife Clip, Knife Guard and Height of Cut Adjustments on pages 10, 11, 12, and 13.
8. Lower the cutter bar to operating position and check the tension on the breakout spring. It should be just tight enough to prevent the cutter bar from breaking back in normal mowing. See Cutter Bar Breakout Spring Adjustment on page 12.
9. See Table II on page 8 to obtain the recommended P.T.O. speed for the drive sheave to be used. Also, find the sheave size and operating gear to use according to the crop to be cut, by checking Table III on page 9.

# OPERATION

## DETACHING THE MOWER

1. Shut off the tractor engine and disengage the tractor P.T.O. after the engine has stopped. Start the tractor engine and raise the mower with the tractor hydraulic control lever.
2. Raise the cutter bar to transport position and install the transport rod (3) as shown in Figure 7.
3. Detach the lift spring (7), Figure 6, from the links (5), by removing the pin (6) and pinch pin.
4. Depress the snap coupling (4) and detach the mower drive shaft (11) from the tractor.
5. Shut off the tractor engine, place a cement block (1), Figure 7, or other suitable block under the mower to support the mower in approximately the operating position and lower it onto the block.
6. Detach the right stabilizer (9), Figure 6, and the left stabilizer (10) from the tractor lower links by loosening the nuts on the clamps.

7. Detach the upper link (3) from the tractor hydraulic lift rocker (1), Figure 6.

8. Detach the tractor lower links (8) and (12), Figure 6, from the mower, start the tractor engine, and slowly drive the tractor clear of the mower.

## DRIVE SHEAVE SELECTION TABLES

TABLE I (SIZES AVAILABLE)

OPERATING DATA		DRIVE SHEAVE SIZE (INCHES)			
		9	10-1/2	12	14-1/2
KNIFE CYCLES	Recommended	900	900	900	900
	Maximum	1050	1050	1050	1050
P.T.O. SPEED (540 SPEED RANGE)	Recommended	670	570	500	410
	Maximum	780	670	580	480

TABLE II ENGINE R.P.M. REQUIRED FOR P.T.O. SPEED

P.T.O. SPEED ALL FORD TRACTORS (540 RANGE ONLY)	ENGINE R.P.M.									
	4-SPEED TRANS.	5-SPEED TRANS.	SELECT-O-SPEED TRANS.	8-SPEED TRANS.			6-SPEED TRANS.			
				3000 TRANS. DRIVE P.T.O.	3000 LIVE & IND. P.T.O. AND 4000	5000	DEXTA		FMD, FPM & FSM	
							PRIOR TO ENG. NO. 957E63953	AFTER ENG. NO.957E63953 AND SUPER DEXTA	REGULATOR P.T.O.	RAISED P.T.O.
410	1130	1320	1300	1210	1370	1445	1185	1365	905	1215
480	1320	1540	1525	1415	1610	1690	1390	1600	1065	1420
500	1375	1600	1590	1475	1675	1760	1450	1665	1110	1480
570	1570	1830	1810	1680	1910	2010	1650	1900	1260	1690
580	1600	1870	1845	1710	1940	2040	1680	1935	1285	1720
600	1840	2150	2130	1975	2245	(2360)*	1940	2230	1480	1985
780	2150	*	*	(2300)*	(2610)*	(2750)*	(2250)*	(2600)*	1730	(2310)*

\* Above the maximum recommended engine speed.

# OPERATION

## OPERATION

The drive sheave sizes and tractor gear ratios listed in tables I, II, and III are recommended for the listed Operating Conditions when using a Ford Tractor equipped with a 4-Speed, 5-Speed, 8-Speed, or Select-O-Speed Transmission.

**NOTE:** When installing a different size drive sheave on the mower, the sheave and its appropriate drive belt must be installed before the mower can be operated.

**TABLE III (GEAR SELECTION TO MATCH MOWING CONDITIONS)**

### NORMAL MOWING (Alfalfa, Clover, etc.)\*

FORD TRACTOR TRANSMISSION	DRIVE SHEAVE SIZE	TRANSMISSION GEAR
4-Speed	9"	3rd
5-Speed	10-1/2"	4th
8-Speed	12"	6th
Select-O-Speed (Except 6000)	10-1/2"	8th
6000 Select-O-Speed (540 P.T.O. range only)	14-1/2"	9th

### TOUGH MOWING (Wild Hay or Other Fine, Tough Grasses)\*

FORD TRACTOR TRANSMISSION	DRIVE SHEAVE SIZE	TRANSMISSION GEAR
4-Speed	9"	2nd
5-Speed	10-1/2"	3rd
8-Speed	12"	4th
Select-O-Speed (Except 6000)	10-1/2"	7th
6000 Select-O-Speed (540 P.T.O. range only)	14-1/2"	8th

\* On 3000 with transmission driven P.T.O. use 10-1/2" sheave.

\*\* On 3000 with live P.T.O. use 12" sheave.

### LIGHT MOWING

(In areas where crop and ground conditions permit)

FORD TRACTOR TRANSMISSION	DRIVE SHEAVE SIZE	TRANSMISSION GEAR
4-Speed	14-1/2"	4th
5-Speed	14-1/2"	5th
8-Speed	14-1/2"	7th
Select-O-Speed (Except 6000)	14-1/2"	9th
6000 Select-O-Speed (540 P.T.O. range only)	12"	9th

\* Based on the recommended 900 knife-cycles per minute.

### P.T.O. SPEEDS

After the appropriate size drive sheave has been selected from Table III, use Table I to determine the proper P.T.O. speed to be used. The P.T.O. speeds listed are "limiting" speeds, calculated to give a reasonable mowing capacity and a reasonable mower service life. The mower will operate satisfactorily at slower speeds and give greater mower service life. It may be desirable to operate at varying speeds to suit local terrain and crop conditions, however, exceeding the recommended P.T.O. speeds will considerably shorten the service life of the mower. To prolong the life of the mower, **DO NOT EXCEED THE RECOMMENDED P.T.O. SPEEDS.**

After the P.T.O. speed has been selected, use Table II to determine the proper engine speed that is needed to give the recommended P.T.O. speed. Use the tractor Proof-Meter to obtain the given engine speed.

#### Example:

**Problem** - Determine the size drive sheave, tractor gear ratio, and P.T.O. speed that will give the best mowing results when given the following conditions:

A Ford Tractor equipped with a Select-O-Speed Transmission.

Crop . . . . . Alfalfa

Moderately rough ground.



## ADJUSTMENTS

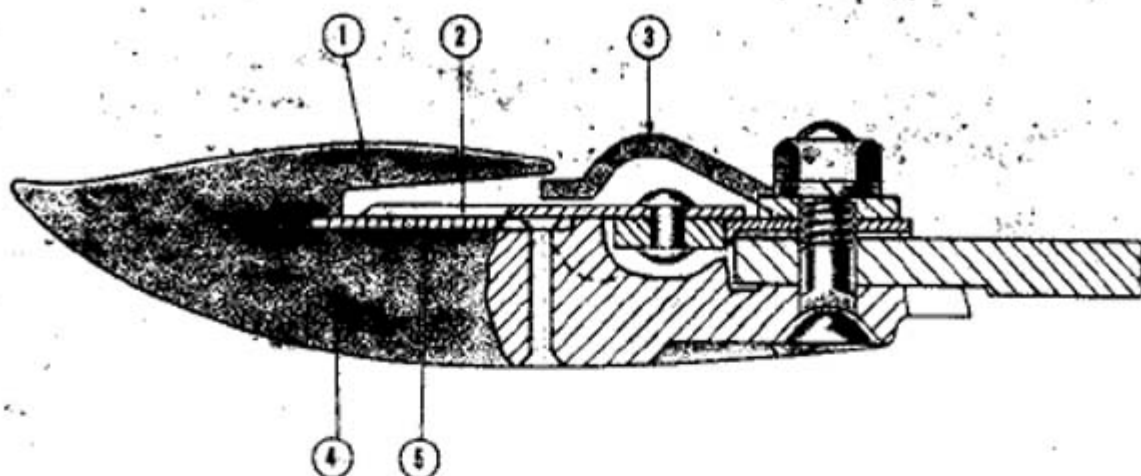


Figure 8  
Cross Section of the Cutter Bar

**Solution** = From Table III it can be determined that a 10-1/2" drive sheave and 8th gear should be used. Table I indicates that the mower should be operated at a P.T.O. speed of 570 rpm. To obtain this given P.T.O. speed, the engine speed should be 2130 rpm as indicated in Table II.

### GROUND SPEEDS

The proper ground speed is determined by the type, condition, and density of the crop; roughness of the ground; and field obstructions (stones, stumps, etc.). Suitable ground speeds are obtained through the use of the various gear ratios. Generally, the higher gear ratios are used in light, easy-to-cut crops and the lower gear ratios for heavy, tough-to-cut crops. Use Tables I, II, and III as a guide in selecting the proper ground speed.

In short thin crops that do not offer much resistance to the cutter bar, it may be necessary to decrease the ground speed by using a lower gear. If stubble cut is long, a reduction in ground speed may be necessary.

### ADJUSTMENTS

**Knife Guards:** Align the guards (4), Figure 8, by striking the forward end up or down with a hammer until the ledger plates (5) align with each other and with the plates on inner and outer shoe. The knife guard lip (1) should be above the knife clip (3) and kept straight as shown in Figure 8.

**NOTE:** Align the guards before attempting to adjust the knife clips.

**Knife Clips:** The knife clips (3), Figure 8, should hold the knife sections down on the ledger plates (5) without binding the knife section. Adjust by removing the knife and striking the forward end of the clip up or down.

**Register Adjustment:** Proper knife register is an important factor in efficient mower operation. The center line of the knife sections should be approximately in line with the center line of the knife guards, when the Pitman arm is at either end of its stroke. If the knife sections are out of register, adjust them by adding or removing shims (2), Figure 9, between the yoke bracket (1) on the main frame and the cutter bar yoke (4).

**NOTE:** The register must be checked and balanced at each end of the Pitman arm stroke, as the knife stroke is slightly less than the distance between the guards.

**Knife Guides:** To avoid excessive slap or vertical play of the knife head, remove the nuts (11) and (15), Figure 9, from guide plates (12) and (16). Remove the shims from under each guide plate until the knife has approximately 1/64" - 1/32" vertical freedom (the knife should not bind when the cutter bar is lifted and is bending under its own weight). When replacing the rear knife guide (12), position the wear plate underneath the knife guide so the knife head has approximately 1/16" to 1/32" side play.

## ADJUSTMENTS

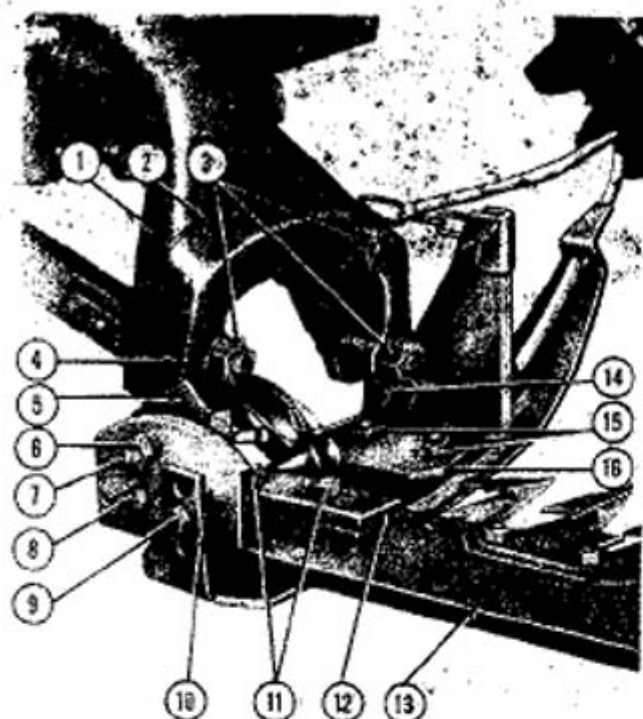


Figure 9  
Adjusting the Mower

**Cutter Bar Tilt:** The cutter bar may be adjusted to tilt up or down 10 degrees. This adjustment is made by loosening the three nuts (3), Figure 9, and rotating the cutter bar (13) and yoke (4) on the lower frame yoke bracket (1) to the desired position. Slotted holes in the yoke bracket (1) permit the bolts to move with the cutter bar.

**Cutter Bar Lead:** The Ford Rear Attached Mower Cutter Bar is designed with a built-in lead of 1-1/2 degrees (1/4" per foot of cutter bar). To compensate for wear, a lead adjustment has been provided through an eccentric on the rear hinge bushing. To adjust, remove the bolt (8), Figure 9, loosen the lock nut (6) and the rear hinge bolt (7) which is threaded into the inner shoe. Then, rotate the eccentric flange (5) by tapping it with a hammer for the proper lead. Secure the eccentric flange (5) to the inner shoe with the locking bolt (8), lock washer, and nut as shown in Figure 9, and tighten the rear hinge bolt (7) as much as possible. Lock the hinge bolt securely with the lock nut (6).

**IMPORTANT:** Hinge bolts (7) and (14), Figure 9, should be checked frequently to be sure they do not work loose.

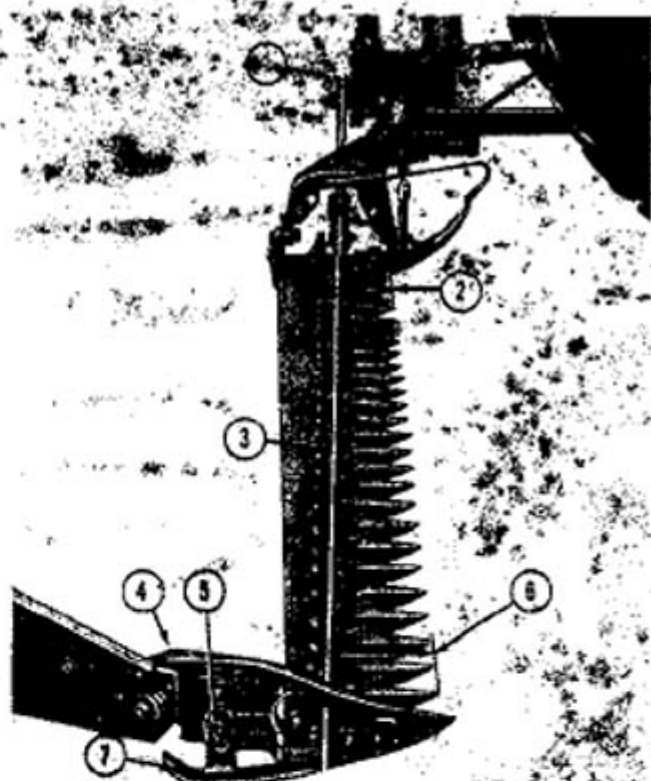


Figure 10  
Checking Cutter Bar Lead

To check the mower for lead, the mower must be mounted on the tractor and the cutter bar lowered as shown in Figure 10. Tie a strong cord (3), Figure 10, around the Pitman box assembly (1) so it is centered on the Pitman arm and stretch it in a line parallel to the Pitman arm to the outer end of the cutter bar as shown. Measure the distance between the string and the tip of the guards near the inner shoe as shown at (2), and compare it with the distance between the string and the tip of the guards at the outer shoe as shown at (6). The difference represents the amount of lead in the cutter bar which should be about 1/4 inch per foot of cutter bar length.

**Cutter Bar Balance Spring:** The tension of the cutter bar balance spring (8), Figure 19, controls the weight of the cutter bar at the outer shoe. To obtain the desired floating action, lift the mower to transport position to reduce spring tension. Loosen the lock nut (12) and loosen or tighten the adjusting nut (11) until the ground pressure at the outer end of the cutter bar is between 25 and 40 pounds. Proper balance spring adjustment will leave the cutter bar heavy enough to follow the contour of uneven ground without bouncing but not so heavy that it will dig in.

## ADJUSTMENTS

**Cutter Bar Lift:** A lift of 1" at the inner shoe will change the lift at the outer shoe, 6" to 8". The lift should be adjusted so the outer shoe will raise off the ground as follows:

Bar Length	Lift at Outer Shoe
6'	24"
7'	27"
8'	30"

If the bar is set to lift too high, its drop into ditches will be reduced. If tires are worn or under-size, the lift should be 1" to 2" lower. If the rear tires are over-size the lift can be increased 1" to 2". The lift should be reduced by 6" on tractors with Category II hitch. With proper lift the inner shoe will raise approximately 8" off the ground before the outer shoe starts to raise. To adjust, first complete the Cutter Bar Balance Spring Adjustment, then lower the cutter bar to the ground and make sure the mower lower frame is horizontal. Adjust if necessary with the tractor leveling crank (2), Figure 7, until the tractor right lower link is approximately three inches lower than the left lower link. Place a block under the inner shoe so that it is 8 inches from the ground and turn the nut and lock nut (13), on the balance spring adjusting bolt (14) until the outer shoe starts to raise off the ground. Lock the adjustment at this point. Remove the block from under the inner shoe and raise the cutter bar with the tractor hydraulic control lever. This will leave sufficient slack in the linkage to permit the inner shoe to raise first as required, and when completely raised, the outer shoe should be about 30 inches off the ground depending upon tire size, length of cutter bar, etc.

**Mower Lift Spring:** The lift spring (5), Figure 11, carries most of the mower weight in the operating position and directly controls the ground pressure on the inner shoe. To permit the cutter bar to follow the contour of uneven ground without excessive wear on the inner shoe, adjust the lift spring to maintain between 40 and 80 pounds on the inner shoe. When crossing borders, set the lift spring a little heavier.

**NOTE:** Complete cutter bar balance spring and cutter bar lift adjustments before adjusting the lift spring.

To adjust the lift spring (5), Figure 11, lift the mower to transport position to reduce spring tension. Loosen the lock nut (4) and turn the spring adjusting

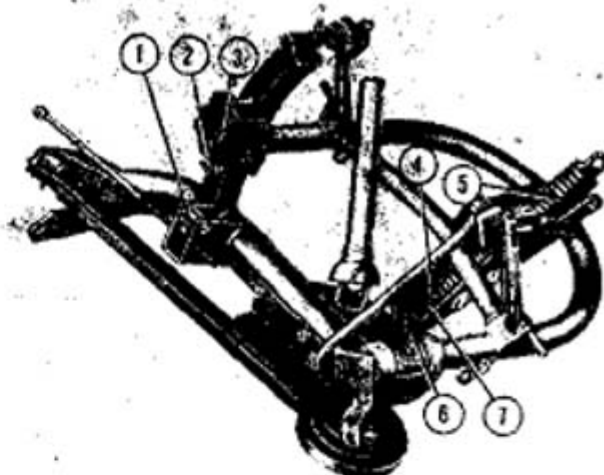


Figure 11  
Adjusting the Mower Lift Spring and  
Cutter Bar Breakout Spring

bolt (7) in or out as required. Secure the adjustment by turning the lock nut (4), Figure 11, against the spring as shown. The nut (6) should be kept tight against the washer so the rubber bushing will absorb shock and prevent the spring adjusting bolt (7) from rattling when the mower is in transport.

**Cutter Bar Breakout Spring:** To check breakout, loosen the bolt (3) until the breakout releases easily, then tighten as necessary. The breakout spring, concealed in the right leg of the mower upper frame, applies tension to the breakout latch (2), Figure 11, which when engaged with the roller (1) connects the right side of the upper and lower frame. When the cutter bar strikes an obstruction, the sudden added force on the cutter bar forces the latch off the roller and the cutter bar breaks back. A sliding connection is maintained between the upper and lower frame and the breakout latch may be reengaged by backing the tractor with the cutter bar on the ground. To adjust the tension on the latch (2), Figure 11, turn the bolt (3) in or out as required. The roller (1) must be free to roll for proper functioning.

**Mower Upper Link:** When attaching the mower upper link (2), Figure 12, to the tractor, use the lower hole (1) on the hydraulic lift rocker. It is recommended that the upper link be adjusted so that the mower upper frame is nearly vertical. If the upper link is not correct, the breakout guide may be damaged by the tractor lower link and universal joints may be bent at too great an angle when mower is lifted.

## ATTACHMENTS

**Height of Cut:** The height of cut is controlled by the position of the inner and outer shoe soles. Adjust the inner and outer shoe by raising or lowering them on the shoe as desired. For uniform cutting, adjust both soles alike.

To adjust the outer sole (4), Figure 10, remove the bolt (5), raise or lower the sole to the desired position on the shoe (7), replace the bolt (5), and secure with the lock washer and nut as shown.

To adjust the inner shoe, remove the bolt (9), Figure 9. Raise or lower the sole to the desired position on the shoe (10) and replace the bolt (9). Secure with the lock washer and nut as shown.

**IMPORTANT:** Do not attempt to mow with the inner and outer shoe sole carried off the ground unless a clipping wheel attachment is used.

**Drive Belt Tension:** To adjust the tension on the V-belt (6), Figure 12, loosen the nuts (3) and turn the adjusting bolt (4) against the bearing housing until there is approximately 1/4" free play in the belt, midway between the drive sheave and the driven flywheel. Secure the adjusting bolt (4), Figure 12, with the lock nut (5) and tighten the nuts (3).

**Grass Stick Adjustment:** For the most efficient mower operation, the grass stick should be adjusted to leave the widest strip possible between the cut swath and the uncut hay. The grass stick can be adjusted for varied conditions by repositioning the grass stick clamp, shown in Figure 21. Extra holes have been drilled in the swathboard for this purpose.

**IMPORTANT:** After making all cutter bar adjustments, operate the mower approximately one minute with the bar on the ground and approximately one minute with the bar raised. Increase the clearance at any point where parts become hot.

## ATTACHMENTS

The following is a list of optional equipment which is available to adapt your Series 501 Mower to various operating conditions.

**Clipping Wheel Attachment, Part No. 149188:** The Clipping Wheel Attachment has a wide range of uses such as mowing shoulders of gravel roads or in other areas where loose stones and rocks are prevalent. It can also be used in pastures and fields where weed



Figure 12  
Lubrication Points

control or a cut of from 1 to 8 inches is desired. The Clipping Wheel Attachment can be used only on tractors with position control. Further information on this attachment is covered in the Assembly and Operating Instructions, SE 6228-S2.

**Cut Free Guards, Part No. 241053:** Following is a general description of crops and conditions in which use of the cut free guards should be considered.

- Extremely heavy hay that has lodged and tangled and remains damp near the ground, so that grass and leaves stick to the points of conventional guards and cause clogging.
- Where material gathers on the points of conventional guards and clogs the cutter bar.
- In extremely dense specialty crops such as pangola grass.
- In new crops which are matted with previous year's growth.
- In loose hay, straw and trash.



## LUBRICATION AND MAINTENANCE

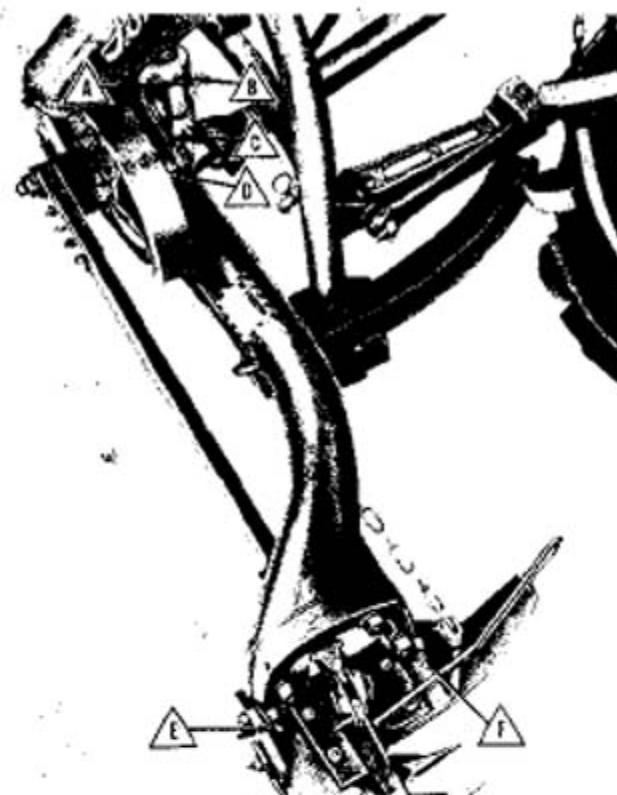


Figure 13  
Lubrication Points

A full set of cut free guards may be needed for these special conditions, or at times, one to three cut free guards adjacent to the inner shoe will help eliminate clogging caused by loose hay laying against the standing hay. Several cut free guards adjacent to the outer shoe may also help to eliminate clogging in loose hay when finishing lands.

The conventional guard, if working without clogging, generally cuts closer and cleaner than the cut free guard.

For example:

- Cut free guards cannot operate satisfactorily in wet conditions where dirt, plant juices, and bits of plants pack in the guards under the knife and raise the knife. Conventional guards, having an upper lip, will continue to cut. In short, the tough grasses, the lipless and pointless cut free guard will not control and cut the grass as well as the conventional guard.

The cut free guards should be installed with the shoulder tight against the front edge of the cutter bar. The bolts used to attach the guards to the cutter bar

must be securely tightened during initial installation and should be retightened after a short period of use.

The cut free guard will cut cleaner if the cutter bar is adjusted close to the ground with the forward part of the cutter bar tilted slightly down. Spring tension on the cutter bar should be reduced so the bar will ride in close contact with the ground with no tendency to bounce and ride over the crop. Knives and ledger plates should be kept sharp to help do a clean cutting job. Knife clips should be adjusted down to provide a good "scissor cutting" action of the knife in relation to the guards. Guards bent in the field should be sprung up or down to align with other guards and the inner and outer shoes.

**Transport Lock Assembly, Part No. 149170:** The transport lock assembly is designed to provide safe transport for the Ford Rear Attached Mowers when mounted on 9N, 2N, or 3N Tractors. When the P.T.O. is disengaged, the hydraulic pump on these tractors will not operate, which may allow the lift links to settle. The use of the transport lock will prevent the lift links from settling or dropping.

### LUBRICATION

The Series 501 Mower has eleven grease fittings which should be lubricated as recommended to protect the wearing parts and prolong the life of the mower. The flywheel shaft housing (D), Figure 12, and the pulley shaft housing (D), Figure 13, have large grease reservoirs which should be well greased when the mower is new. When lubricating the universal joints (A) and (C), Figure 12, use a sufficient quantity of new grease to flush the old grease from the bearings and replace it with clean grease. When greasing the the frame hinge bearings (A) and (C), Figure 13, only one stroke of the grease gun is required. Always keep the P.T.O. drive shaft and telescoping shield (B), Figure 12, thoroughly lubricated to prevent binding.

The following table indicates the fitting location and frequency with which it should be greased.

Ref.	Description	Frequency
Fig. 12		
A	Universal Joint	Every four hours
B	Universal Drive Assembly	Every eight hours



# MAINTENANCE

Ref. Fig. 12	Description	Frequency
C	Universal Joint	Every four hours
D	Flywheel Shaft Housing	Every eight hours
E	Pitman Bearing	Remove cap - fill with grease every 200 hours or once a season.

Ref. Fig. 13	Description	Frequency
A	Upper Frame Hinge	Every four hours (light)
B	Bellcrank Pivot	Every eight hours
C	Lower Frame Hinge	Every four hours (light)
D	Drive Shaft Housing	Every eight hours (light)
E	Cutter Bar Yoke Hinge	Every four hours (light)
F	Cutter Bar Yoke Hinge	Every four hours (light)

## MAINTENANCE

1. Make a periodic check of the mower for worn parts, improper adjustments, and loose nuts and bolts. Be especially watchful of the Pitman arm as the wood may shrink during dry weather causing the bolts to loosen. Early failure of the Pitman arm will occur unless the bolts are kept tight.
2. Replace all worn or broken parts promptly.
3. Keep the knife in register and properly sharpened.
4. Lubricate the mower as directed on page 14.
5. Store the mower in a clean, dry place.
6. When storing the mower, cover the knife with a

good rust preventive. Place the mower in a safe location to avoid possible injury to persons and animals. Thoroughly clean the entire mower, replace worn or broken parts, lubricate the grease fittings and cover the unprotected parts with rust preventive.

## KNIFE AND CUTTER BAR MAINTENANCE

**Removing the Knife:** Snap the end of the lever (10), Figure 20, up and outward with the small hook on the transport rod. Lift the Pitman arm off the knife head ball with the large hook on the transport rod, and at the same time step on the lever (10) hard enough to press down the knife head ball and spread the Pitman arm straps. Slide the knife free.

**Removing Knife Sections:** To remove the knife sections from the knife back, place the section loosely in a vise with the knife back resting on the vise jaw. Strike the back of the section with a hammer to shear the rivets. Drive the sheared rivets out of the knife back with a metal punch.

**Sharpening the Knife:** The knife sections should be sharpened carefully to maintain the original angle and bevel. Replace the knife sections that are broken, badly worn, or irregular. Check the knife for loose rivets and replace when necessary.

**Replacing Knife Sections:** Remove the knife from the mower and remove the broken sections as outlined. Position the knife section and two rivets on the knife back and place this assembly on a solid surface with the rivet heads down to hold them in place. Strike the rivets with a rivet set and check to be sure the section is as tight as possible. Repeat this procedure until all sections have been replaced.

**Replacing Ledger Plates:** Ledger plates should be replaced if the edges become worn. Dull ledger plates cause ragged cutting and side draft. Remove knife, raise cutter bar to transport position and drive out the Groove-Pins that hold the ledger plate in place with a metal punch. Position a new ledger plate in the guard. Lower cutter bar to ground and drive in new Groove-Pins. Replace knife.



# SHIPPING AND ASSEMBLY

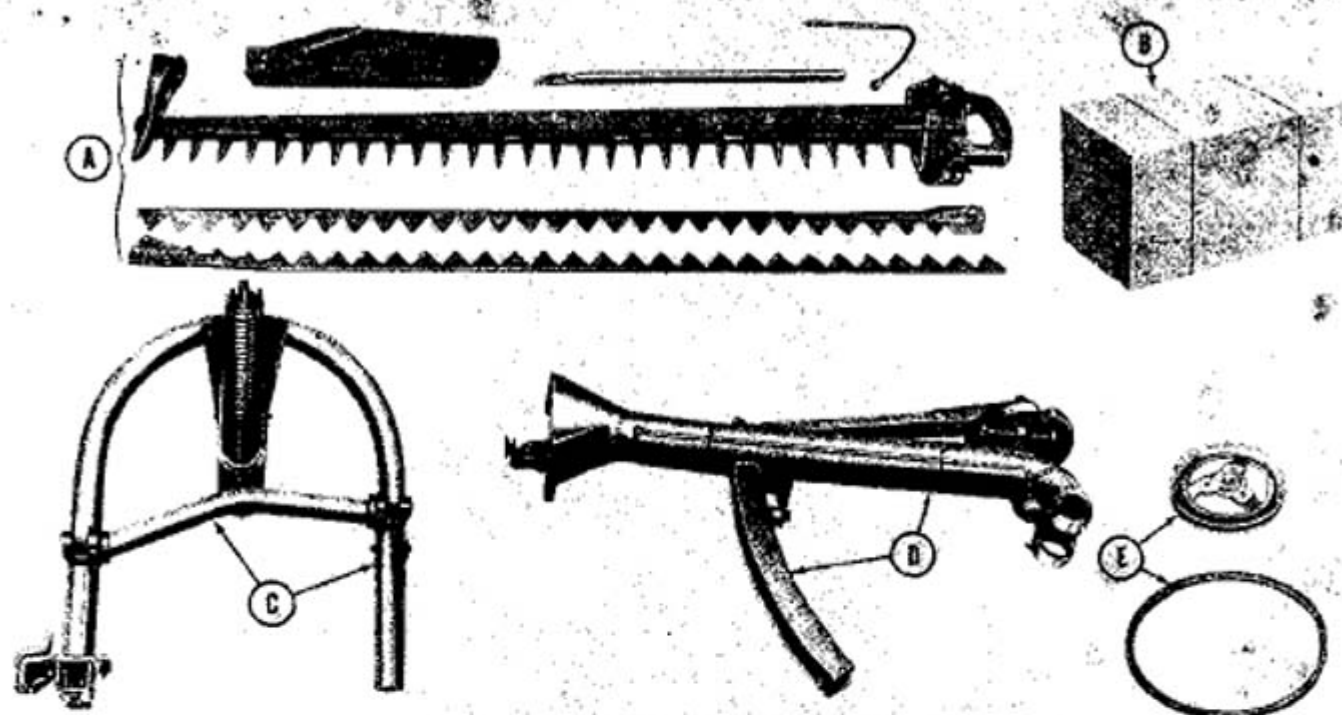


Figure 14  
Series 501 Mower Bundled for Shipment

## SHIPPING INFORMATION

The Ford Series 501 Mower is shipped in six bundles, consisting of an upper frame bundle; a lower frame bundle; a sheave and belt bundle; a cutter bar bundle; a carton of parts as illustrated in Figure 14, and an attaching kit. Check the contents of the six bundles to make certain all parts are received.

Ref. Fig. 14	Description	Qty. Req'd.
A	Cutter Bar Assembly	1
B	Carton of Loose Parts	1
C	Upper Frame Assembly	1
D	Lower Frame Assembly	1
E	Drive Sheave and Belt	1

The carton of loose parts consists of:

Ref. Fig. 15	Description	Qty. Req'd.
1	Upper Belt Guard	1
2	Bag of Small Parts	1

Ref. Fig. 15	Description	Qty. Req'd.
3	Upper Belt Shield	1
4	Pushrod Assembly	1
5	Operator's Manual	1
6	Bellcrank Assembly	1
7	Cutter Bar Balance Spring and Cover	1
8	Rod Assembly	1
9	Main Drive Assembly (Prior to 1966 production. Tractor end of P.T.O. shaft in mounting kit as of 1966 production).	1
10	Upper Link Assembly	1

## ASSEMBLY

1. Install the right and left mower stabilizers, when required, with the mounting pin through ears of the upper mower frame and the stabilizer. Secure each stabilizer in place with a 5/16" x 2" drilled pin and a 1/8" x 3/4" cotter pin.

## ASSEMBLY

2. Install tractor stabilizers, when required.
3. Position the lower frame (1), Figure 16, as shown; and insert the left side of the upper frame (2) through the yoke (3).
4. Thread the bellcrank (7) as far as possible into the left leg of the upper frame (2), so it is free to pivot in the approximate position shown.
5. Attach the breakout wedge (9), Figure 17, to the left leg of the upper frame with the special cap screw as shown. Do not tighten the cap screw at this time.

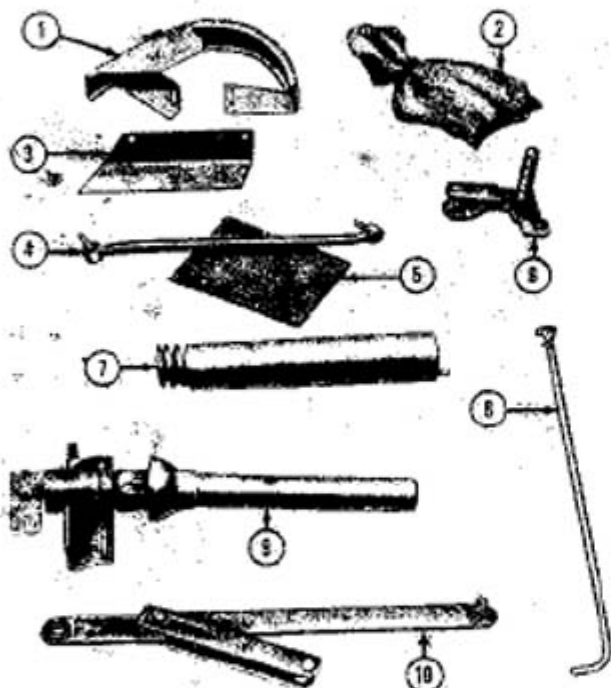


Figure 15  
Contents of Wooden Box

6. Latch the mower breakout and position the wedge (9) as far to the right as possible, toward the P.T.O. drive in Figure 17. Tighten the cap screw.
7. Engage the lower edge of the breakout guide (5), Figure 16, under the welded plate (4) on the upper frame and position the frames as shown in Figure 17.

**NOTE:** Do not attempt to secure the breakout latch (8) on the roller (5), Figure 16, until the cutter bar is attached.

8. Attach the breakout guide stop (3), Figure 17, to the end of the breakout guide (5), as shown; and

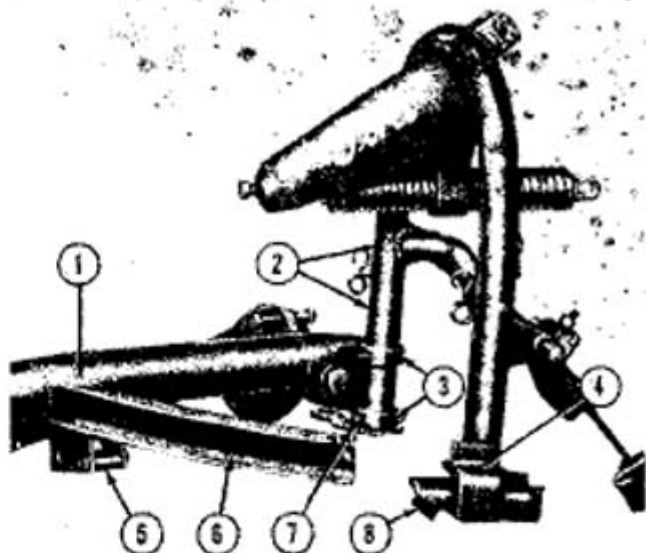


Figure 16  
Upper Frame Attached to Lower Frame

secure with the 7/16" x 1" bolt (4), lock washer, and nut provided.

9. Assemble the drive assembly and belt guard on the mower as follows:
  - a. Loosen the belt adjusting bolt jam nut (2), Figure 17, and turn the adjusting bolt (8) in sufficiently to permit easy installation of the drive shaft housing (1).
  - b. Position the drive shaft housing (1), Figure 17, on the lower frame (6) as shown. Place a

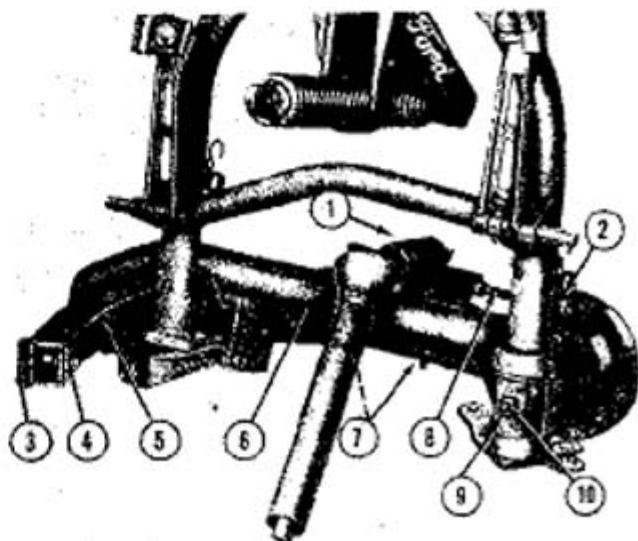
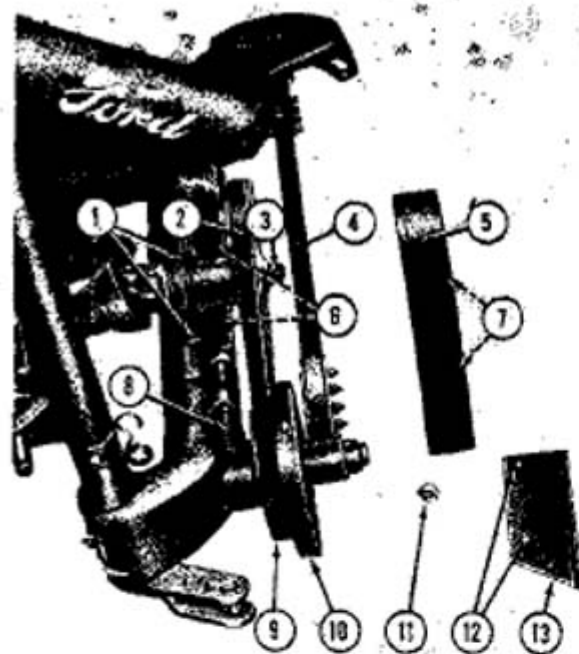


Figure 17  
Drive Shaft and Breakout Wedge Attached



**Figure 18**  
**Drive Belt and Guards Attached**

large flat washer on each of the 7/16" x 5" bolts (7) and place the bolts (1), Figure 18, through the holes on either side of the drive shaft housing and through the lower frame.

- c. Slip the V-belt (9), Figure 18, over the free end of the Pitman arm (4) and position it on the flywheel (10) as shown. Place the other end of the V-belt on the drive sheave (2) and slip the sheave on the splined drive shaft (3). Attach the flat washer and slotted nut, adjust the bearing preload as described below; then secure the slotted nut with the 1/8" x 1/4" cotter pin as shown.

**NOTE:** The Pitman and flywheel shaft assembly (10), Figure 18, and drive shaft assembly (3) are equipped with tapered roller bearings and should not be overtightened. Rotate the shaft while tightening the nut until a slight drag is left. Loosen the nut until a slot in the nut aligns with the first of two holes in the shaft, but not more than 1/2 turn. Tap the shaft end to free the bearing. The end play should be - .001" to - .004" with this adjustment.

- d. Position the upper belt guard (5), Figure 18, over the drive sheave (2) so that the holes

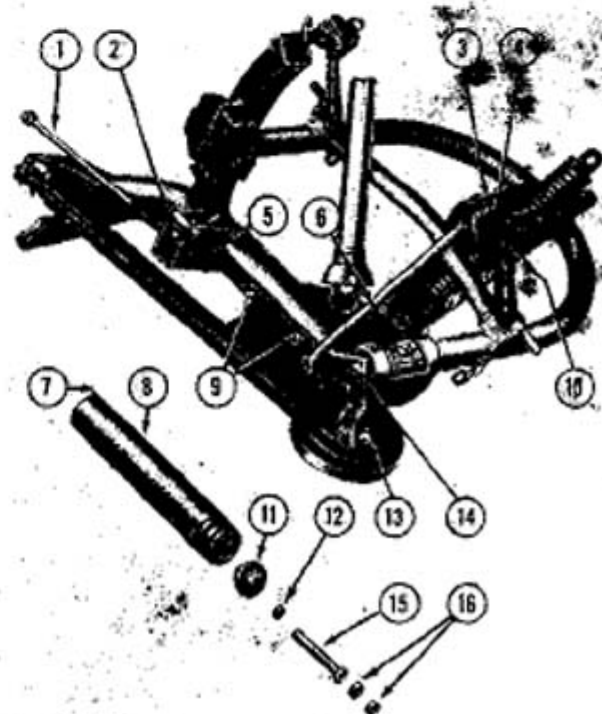
(7) in the upper belt guard align with the holes (6) in the frame. Install two 3/8" x 1" hex head bolts, lock washers, flat washers, and nuts through the holes (7) and the holes (6) attaching the upper belt shield to the frame.

- e. Place the lower belt guard (13), Figure 18, in the position shown in Figure 19, and fasten loosely with two 7/16" nuts (9), Figure 19. These nuts also secure the drive housing to the frame.

- f. Turn the belt adjusting bolt (8), Figure 18, against the bearing housing until there is 1/4" slack in the V-belt, midway between the pulleys. Lock the adjusting bolt (8) in this position with the nut (11). Tighten the nuts (9), Figure 19, holding the lower belt guard and drive shaft housing secure.

10. Attach the cutter bar balance spring assembly to the mower as follows:

- a. Hold the Pitman arm close to the lower frame to avoid breakage, and roll the assembly to the rear as shown in Figure 19.



**Figure 19**  
**Cutter Bar Balance Spring Disassembled**

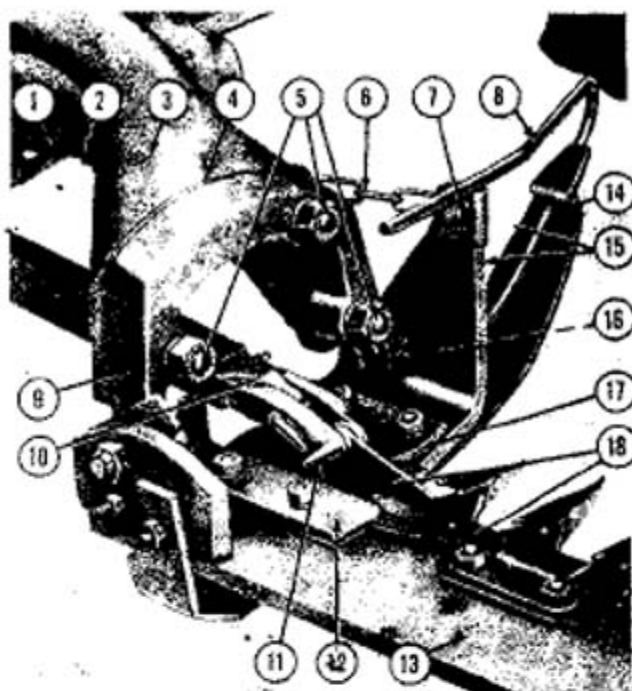


Figure 20

Pitman and Knife Assembly Attached

- b. Insert the rod (1), Figure 19, through the large holes in the lower frame roller bracket (2) and slide the balance spring (8) with cover, on the rod so the spring end (7) is locked in the hole (5).

- c. Start the spring adjusting nut (11), Figure 19, and the lock nut (12) on the rod (1) sufficiently to permit the end of the rod to slip through the hole in the trunnion (13) on the bellcrank (14). Place the sleeve (15) on the end of the rod so it will protect the threads from the trunnion (13) and secure the extreme end of the rod with two lock nuts (16).

**NOTE:** Final adjustment of the balance spring must be made when the mower is assembled on the tractor. See page 11 for balance spring adjustment.

11. Position the push rod (6) as shown in Figure 19, between the bellcrank (14) and the left-hand stabilizer guide (10). Be sure the rubber seal (3) is on the bolt at each end of the rod (6) and secure each with a 1/2" slotted nut (4) and a 1/8" x 1" cotter pin as shown. Hold the Pitman arm close to the lower frame and roll the mower frame assembly in an upright position (see Figure 13) to facilitate attaching it to the tractor.

12. Attach the mower frame assembly to the tractor as described in Step 4 of Attaching the Mower, page 5.

13. Attach the cutter bar assembly to the mower frame assembly as follows:

- a. Insert three 3/4" x 3-1/2" carriage bolts (5), Figure 20, through the slots in the yoke end of the lower frame (3), and place the register shims (4) on the bolts. Place the cutter bar and Pitman arm in position, and push the bolts (5) through the three holes in the cutter bar yoke (9). Adjust the cutter bar tilt for approximate field conditions, and secure the bolts with lock washers and nuts.

- b. Raise the outer end of the cutter bar (13), Figure 25, and attach the transport rod as shown in Figure 2. Attach one end of the lift link chain (6), Figure 20, to the rod (1) with the 1/2" x 1-3/16" pin and a 1/8" x 1" cotter pin at (2). Attach the other end of the lift link chain to the lift bracket (15) on the inner shoe with the 1/2" x 1-1/4" pin and a 1/8" x 1" cotter pin as shown at (7). Remove the transport rod and lower the cutter bar to the ground.

- c. Install the grass rod (8) on the inner shoe by inserting it through the hole (14), removing the washers and the nut (16); then installing grass rod and reinstalling the flat washer, lock washer and nut (16) on the bolt, thus securing the grass rod to the shoe sole.

14. Attach the swathboard assembly to the outer shoe as follows:

- a. Position the swathboard (3), Figure 21, on the right side of the outer shoe (5) and insert a 1/2" x 2-3/4" bolt (4) from the left through the swathboard.

- b. Place a spring and then a flat washer on the bolt (4), and secure with the slotted nut and cotter pin as shown.

- c. Insert the tapered end of the wooden grass stick (1), Figure 21, into the grass stick clamp and secure with the bolt (2), flat washer, lock washer and nut provided.



## ASSEMBLY

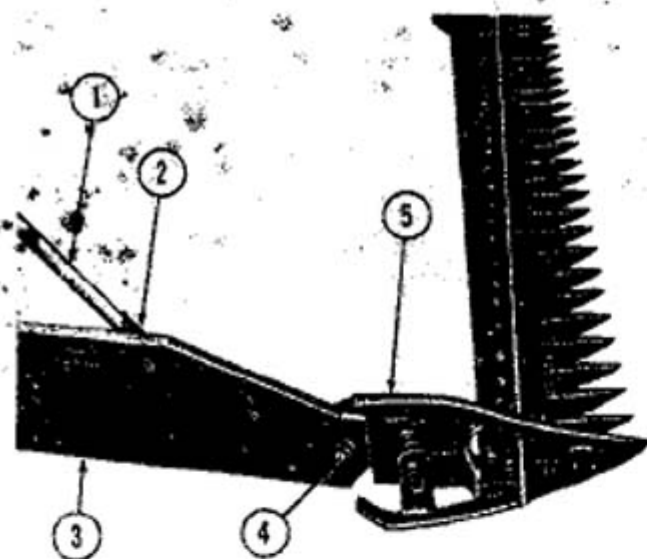


Figure 21

Swathboard Attached to Outer Shoe

**NOTE:** At this point, the cutter bar safety breakout latch (8), Figure 16, should be engaged on the roller (5). To do this, check the roller to be sure it turns freely, start the tractor engine, and lower the cutter bar into operation position. Then, back the tractor up until the breakout assembly is engaged and turn off the tractor engine. If the breakout spring is too tight, consult the breakout spring adjustment on page 12. When the breakout is latched, the retaining wedge must be repositioned. Loosen the cap screw (10), Figure 17, and slide the retaining wedge (9) as far to the right as possible (toward the P.T.O. drive in Figure 17). Tighten cap screw to secure wedge.

15. Insert the knife and secure the Pitman arm to the knife head as follows:

**NOTE:** Prior to inserting the knife, check the guard and ledger plate alignment. See adjustment on page 10.

- a. Release the clamp straps (11), Figure 20, on the Pitman arm by prying the Pitman lever (10) toward the cutter bar.
- b. Insert the knife assembly (18), Figure 20, under the guides (12) and (17). Do not hammer or otherwise force knife; use a large screwdriver to guide it under knife clips as pressure is applied.

- c. Position the Pitman straps (11) on the knife head as shown in Figure 20, and snap the Pitman lever (10) back in place.

16. Start the tractor, then follow steps 8, 9, and 10 in Attaching Procedure, page 6.
17. Adjust the cutter bar balance spring, the cutter bar lift, the mower lift spring, and the cutter bar breakout spring as described under Adjustments, page 10.
18. Operate the mower for about 30 minutes to be sure all bearings are adjusted properly and that the mower is functioning correctly. Shield the cutter bar during this operation, to prevent accidents. Lubricate the knife assembly wear areas freely with a light oil, until binding is eliminated.

## ATTACHING KITS

The following is a list of attaching kits with a description of their contents, and the tractor for which each is designed.

**Attaching Kit 14-341:** This kit is used for attaching the mower to Ford 2000 and 3000 All Purpose Tractors and all prior models except LCG, Fordson Major Tractors, and 6000 Tractors.

Attaching Kit 14-341 consists of:

Ref. Fig. 22	Description	Qty. Req'd.
1	Stabilizer Arm	2
2	Right Stabilizer Guide	1
3	Stabilizer Clamp	2
4	Tractor End of P.T.O. Drive Shaft	1
5	Left Stabilizer Guide	1
6	5/8" - 11 Hex Nut	4
7	5/8" - 11 x 3" Square Head Bolt	2
8	Mounting Pin	2
9	5/16" x 2" Drilled Pin	2
10	1/8" x 3/4" Cotter Pin	2

**Attaching Kit 14-342:** This kit is used for attaching the mower to Ford 4000 All Purpose and Row Crop Tractors. Tractor stabilizers are required.

# ASSEMBLY

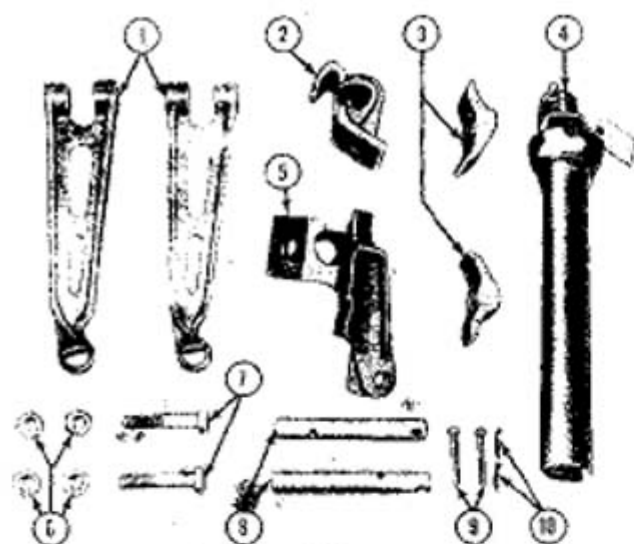


Figure 22  
Attaching Kit 14-341

Attaching Kit 14-342 consists of:

Ref. Fig. 23	Description	Qty. Req'd.
1	Top Link Bracket Assembly	1
2	Push Rod Anchor Assembly	1
3	Mounting Pin	2
4	Headed Pin	1
5	1/4" x 1-1/4" Cotter Pin	1
6	1/8" x 3/4" Cotter Pin	2
7	5/16 x 2" Drilled Pin	2
8	Tractor End of P.T.O. Drive Shaft	1

Attaching Kit 14-324: This kit is used for attaching the mower to Ford 5000 All Purpose Tractors. Tractor stabilizers are required.

Attaching Kit 14-324 consists of:

Description	Qty. Req'd.
Top Plate Assembly	1
Link Bracket Assembly	1
Tractor End of P.T.O. Drive Shaft (with instruction tag for sizing Universal Drive Shaft)	1
Outer Clamp	1

Ref. Fig. 24	Description	Qty. Req'd.
5	Mounting Pin	2
6	3/4" - 10 x 2-3/4" Hex Head Bolt	2
7	5/16" x 2" Drilled Pin	2
8	1/4" x 1-1/4" Cotter Pin	1
9	Headed Pin	1
10	3/4" Lock Washer	2
11	1/8" x 3/4" Cotter Pin	2
12	3/4" - 10 Hex Nut	2

Attaching Kit 14-148: This kit is used for attaching the mower to Fordson Major Tractors. Further information on this attaching kit is contained in Assembly Manual Supplement, SE 6228-AS3, which is shipped with the kit.

Attaching Kit 14-261: This kit is used for attaching the mower to Ford 6000 and prior model 6000 Tractors. Procedures for attaching this kit to the tractor are outlined below.

Attaching Kit 14-261 consists of:

Description	Quantity
Universal Joint and Tube Assembly (with instruction tag for sizing Universal Drive Shaft)	1

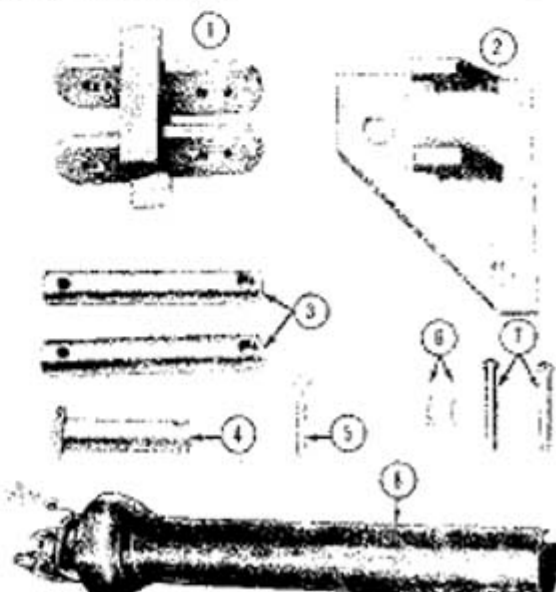


Figure 23  
Attaching Kit 14-342

# ASSEMBLY

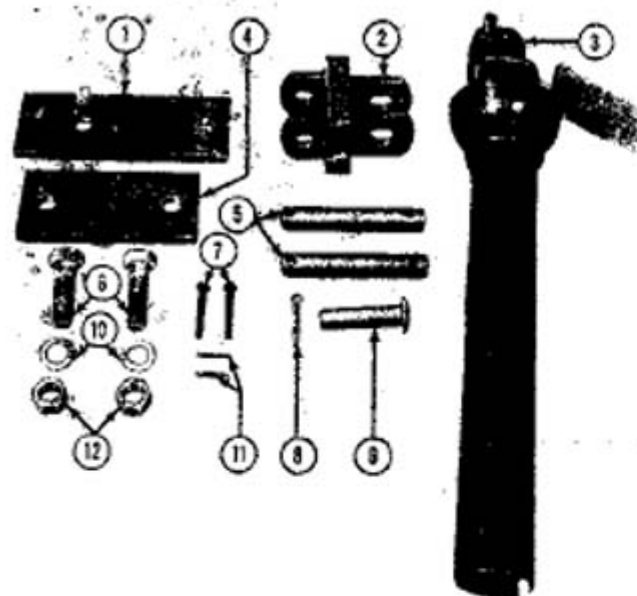


Figure 24  
Attaching Kit 14-324

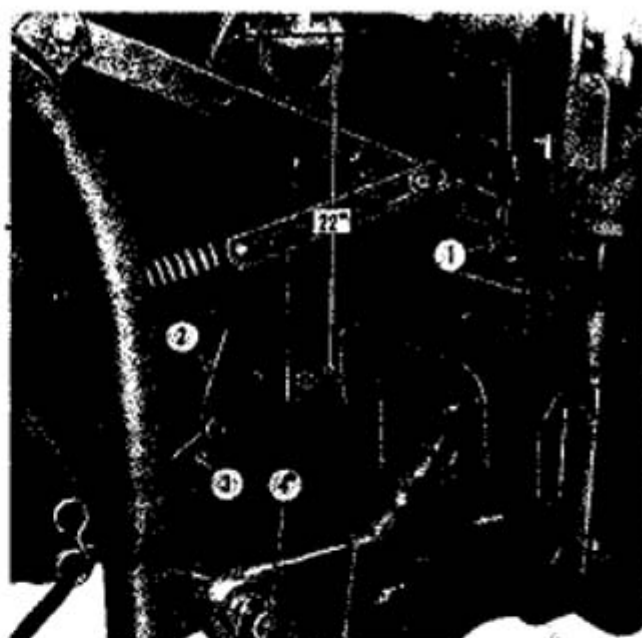


Figure 25  
Attaching Kit 14-261 Installed

## Description

Push Rod Anchor Assembly  
Top Link Bracket Assembly  
Spacer  
3/4" - 10 x 2-1/2" Hex Head Bolt  
3/4" Flat Washer  
3/4" Lock Washer  
3/4" - 10 Hex Head Nut  
Mower Mounting Pin  
Headed Pin  
1/4" x 1-1/4" Cotter Pin

## Quantity

1  
1  
1  
1  
1  
3  
3  
2  
1  
1

3. Adjust the tractor left hydraulic lift rod to a length of 22 inches.
4. Adjust the tractor right hydraulic lift rod to a length of approximately 23-1/2 inches.
5. Set the mower upper link at 25 inches.
6. Attach the anchor assembly (2), Figure 25, to the inside of the tractor left-hand lower link as shown. Attach the top link bracket to the tractor with the link pin.
7. Attach the mower top link to the tractor top link bracket with the headed pin and cotter pin as shown.
8. Secure the push rod (3), Figure 25, to the anchor assembly (2) as shown.
9. Cut the universal joint and tube, provided in the kit, to a length of 17-1/2" (center of yoke to end of tube). Cut the shield 1/4" shorter.

## Attaching Procedure:

1. Attach the lower link pins (4), Figure 25, to the mower frame.
2. Adjust the stabilizer brackets on the tractor to prevent the lower links from swinging when spaced to fit the mower. Refer to your tractor Operator's Manual for details.

